

IN THE CLAIMS

Please amend the claims to read as follows:

Listing of Claims

1. (Currently Amended) A network element apparatus to which a unique global address is assigned in a global network, and which is connected to a single higher level router, performs packet communication with a corresponding node directly or via a home agent, and makes a roaming connection to another ~~other~~ network contained in the global network, the apparatus comprising:

an access section that gains access to said other network by using a temporarily assigned global address which is a different global address from the unique global address;

a generating section that generates a binding update message which contains the unique global address, the temporarily assigned global address, and a global address of the higher level router to which the network element apparatus is connected, and indicates a location of the network element apparatus in the global network; and

a transmitting section that transmits the generated message to another ~~other~~ network element apparatus, which is the corresponding node or the home agent in said other network.

2. (Currently Amended) The network element apparatus according to claim 1, wherein a part containing the global address of the higher level router to which the network element apparatus is connected, in the message contains:

a type field indicating whether the global address of the higher level router is contained in the message or not;

a length field indicating a data length of the part; and

an access router address field indicating the global address of the higher level router.

3. (Currently Amended) The network element apparatus according to claim 1, further comprising a receiving section that receives an advertisement message in IPv6 transmitted from the higher level router to which the network element apparatus is connected, the advertisement message comprising:

i) a type field indicating whether the unique global address of the higher level router is contained in the message or not;

ii) a length field indicating a data length of a part containing the global address of the higher level router in the message; and

iii) an access router address field indicating the unique global address of the network element apparatus, wherein

the generating section that generates the binding update message obtains the global address of the higher level router, to be contained in the binding update message, from the advertisement message received by the receiving section wherein the message is an advertisement message in IPv6, and a part containing the global address of the router in the message contains: a type field indicating whether the unique global address of the network element apparatus is contained in the message or not;

a length field indicating a data length of the part; and

an access router address field indicating the unique global address of the network element apparatus.

4. (Currently Amended) The network element apparatus according to claim 1, wherein information related to reception or rejection of ~~a the~~ last transmitted message is contained in a reply ~~from~~ of said other network element, ~~which is the corresponding node or the home agent~~, in response to the last transmitted binding update message, and ~~a the~~ next transmitted binding acknowledgment message contains the information related to the reception or the rejection, and information which notifies that said other network element apparatus is able to take action to handle the message.

5. (Currently Amended) A network element apparatus comprising:

a receiving section that receives ~~the a~~ binding update message from a network element apparatus according to claim 1; and

a recording section that records an entry containing a home address field indicating ~~a the~~ unique global address, a care-of-address field indicating ~~a the~~ temporarily assigned global address, and an access router address field indicating ~~a the~~ global address of the higher level router to which the network element apparatus is connected, in a corresponding manner with the received message.

6. (Currently Amended) The network element apparatus according to claim 5, wherein updating of the entry sets, in a case where the received binding update message contains the global address of the higher level router, the access router address field of the entry using this address, and sets, in a case where the received binding update message does not contain the global address of the higher level router, the access router address field of the entry to be invalid.

7. (Currently Amended) The network element apparatus according to claim 5 that searches the entry based on a destination of a packet received by the network element apparatus and obtains the temporarily assigned global address corresponding to the destination and the global address of the higher level router to which the network element apparatus is connected, the network element apparatus further comprising;

an address obtaining section that repeats in a recursive manner searching of the entry of the higher level router based on the obtained global address of the higher level router and obtaining of the temporarily assigned global address of the higher level router;

a routing header constructing section that constructs a routing header in reverse order from an order of obtaining the address, and thereby constructs a packet to which the routing header is added, the routing header including an address of a higher level router arranged at a head and a temporarily assigned global address of a mobile node and the unique global address arranged at a tail in that order; and

a section that sets the address at the head of the constructed routing header as a destination of the packet 6, wherein, a routing header is added by the router to a data packet received by said receiving section, the routing header being used to instruct the network element to which destination is indicated with a termination address specified in the data packet to forward the data packet to another destination, containing the global address of the final destination of the data packet.

8. (Currently Amended) The network element apparatus according to claim 7, wherein, when the destination of the packet received by the network element apparatus or a last entry of the routing header is not a valid address in a local network or the destination of the packet is a care-of-

~~address of the network element apparatus and the routing header is not added, the received packet is discarded 5, wherein a determination is made on a verification of whether a source address specified in a data packet received by said receiving section is authentic or not by using information related to an address which is the global address of the router contained in the data packet and which is a different address from the source address, the source address, an entry in the home address field, a care-of address in the entry, and an access router address field of the entry.~~

9. (Currently Amended) A roaming connection method used in a network element apparatus to which a unique global address is assigned in a global network, and which is connected to a single higher level router, performs packet communication with a corresponding node directly or via a home agent, and makes a roaming connection to another ~~other~~ network contained in the global network, the method comprising the steps of:

gaining access to said other network by using a temporarily assigned global address which is a different global address from the unique global address;

generating a binding update message which contains the unique global address, the temporarily assigned global address, and a global address of the higher level router to which the network element apparatus is connected, and indicates a location of the network element apparatus in the global network; and

transmitting the generated message to another ~~other~~ network element apparatus, which is the corresponding node or the home agent in said other network.

10. (New) A packet forwarding system comprising:

a network element apparatus which is equivalent to a mobile node or a mobile router to which a unique global address is assigned in a global network, and which is connected to a single higher level router, performs packet communication with a corresponding node directly or via a home agent, and makes a roaming connection to another network contained in the global network; and

a network element apparatus which is equivalent to the corresponding node or the home agent, wherein:

the network element apparatus equivalent to the mobile router comprises a section that distributes a global address of the network element apparatus equivalent to the mobile router to a mobile node which is connected to the network element apparatus equivalent to the mobile router or a lower level network element apparatus equivalent to the mobile router;

the mobile node which is connected to the mobile router or the lower level network element apparatus equivalent to the mobile router transmits a binding update message including a global address of the mobile node or the lower level network element apparatus, a temporarily assigned address of the mobile node or the lower level network element apparatus, and the global address distributed from the higher level network element apparatus equivalent to the mobile router, in association with each other, to the mobile node, a corresponding node of the mobile router or the home agent; and

the network element apparatus equivalent to the corresponding node or the home agent comprises:

a section that receives the binding update message and holds the association of the addresses as an entry; and

a section that, when a packet is transmitted to the mobile node, searches the association of the addresses from the entry, constructs a routing header where an address of a corresponding higher level router is arranged at a head, a temporarily assigned global address of the mobile node and the unique global address are arranged at a tail in that order, and forwards the packet to the temporarily assigned global address of the mobile router, which is the address at the head.

11. (New) The packet forwarding system according to claim 10 , wherein the network element apparatus equivalent to the mobile router transmits the binding update message to a node corresponding to the mobile node or the network element apparatus equivalent to the home agent.